



Widening Access to Virtual Educational Scenarios

562463-EPP-1-2015-1-UK-EPPKA2-KA

Exemplar implementations – OL3 and CASUS

Deliverable number	D.2.4
Delivery date	June, 2017
Status	final
Authors	Martin Adler (Instruct), Panagiotis Antoniou (AUTH), Andrzej Kononowicz (KI), Supriya Krishnan (SGUL), Samuel McInerney (SGUL), Natalia Stathakarou (KI), Daniel Schwarz (MU), Dimitris Spachos (AUTH), Stephen Taylor (Bayer), and Luke Woodham (SGUL).



Funded by the Erasmus+ Programme of the European Union



TABLE OF CONTENTS

1	INTROE	DUCTION	3
2	THE LT	I STANDARD	3
3	EXEMP	LAR INTEGRATIONS	3
	3.1 OL3	3 Integrations	3
	3.1.1	OpenLabyrinth integrated into OpenEdX	4
	3.1.2	OpenLabyrinth integrated into FutureLearn	7
	3.2 CAS	SUS Integrations	11
	3.2.1	CASUS integrated into Moodle	11
	3.2.2	CASUS integrated into FutureLearn	15
4	BIBLIOC	GRAPHY	19



1 INTRODUCTION

This deliverable reports on the development of exemplar implementations/integrations of Virtual Scenario systems within LMS/MOOC systems.

There are a range of different LMS and MOOC platforms available, all with unique characteristics and features that mean there is no "one-size fits all" solution for integrating systems. The goal of the WAVES project and this deliverable is to provide guidance using exemplar systems and established standards in order to provide a knowledge base that the community can use with any system that supports that standard.

2 THE LTI STANDARD

The key standard that has been identified to use for system integration is Learning Tools Interoperability (LTI). This standard was developed by the IMS Global Learning Consortium, and has been widely adopted by educational systems as a straightforward way to integrate activities into a learning environment in a way that is transparent to end users.

LTI allows learning activities that provide specialised functionalities specific to that activity and platform to be integrated into general learner-facing environments such as Learning Management Systems (LMS), Virtual Learning Environments (VLEs), portals and repositories. In the LTI standard, the specialised learning applications are known as "Tools" (delivered by Tool Providers), and the general learning platforms are known as "Tool Consumers". By integrating a tool into a tool consumer, it allows the functionality of that tool consumer to be effectively expanded to incorporate that of the tool, in a way that is transparent to the end user or learner and which does not require learners to maintain a separate account or login for both the tool provider and the tool.

3 EXEMPLAR INTEGRATIONS

This section describes the series of created exemplar integrations, detailing the configuration required in both the tool (the specialised learning activity - in these cases OpenLabyrinth and Casus) and the tool consumer (the LMS or MOOC platform). Due to the standardised nature of LTI, the configuration steps outlined for any tool are also able to be applied to any conformant tool provider, and vice versa, meaning that these exemplars provide guidance for combinations of tools and tool consumers beyond the specific combinations and systems listed.

3.1 OL3 Integrations



The integrations in this section focus on OpenLabyrinth as the tool in the LTI specification, with different platforms as the tool consumer.

OpenLabyrinth is an open source Virtual Scenario platform, which is freely available under a GNU-GPL3 licence. The version of OpenLabyrinth used in this exemplar is version v3.4, which is the most recent version currently available.

3.1.1 OpenLabyrinth integrated into OpenEdX

OpenEdX (<u>https://open.edx.org/</u>) is an open source MOOC platform, which is freely available in a modular structure under the terms of an Apache and AGPL licence. The platform was developed for and provides the underpinning infrastructure for the EdX platform, which was founded by Massachusetts Institute of Technology and Harvard University in 2012.

The process for linking OpenLabyrinth v3.4 to the OpenEdx platform using the LTI standard can be summarised in the following steps:

- In OL 3, access the LTI manager that can be found under the "Tools" menu by selecting the LTI option. This will take you to the Consumers manager, where you should select "Add a consumer". This will take you to a screen in which you can enter relevant details such as a username, and when you save these changes the Consumer user will be created. It is important when creating a consumer that you use the right access level for your intended purpose so that the access matches the level in your Tool Consumer system. For example, if you intend learners in OpenEdX to access OpenLabyrinth, your LTI consumer in OpenLabyrinth must also be a learner.
- The user can be edited further and details configured and modified by selecting the "Edit" button next to the LTI user in the LTI manager. This will take you to a configuration screen (Figure 1) in which you will also be able to see the system-configured "Consumer key" and "secret" that is necessary to set up the LTI link in the Tool Provider.



♦ OpenLabyrinth Home L	abyrinths 🔹 Tools 🕶	Scenarios▼ Sets▼ Forums Help▼
Q Labyrinth Search	Lti manager / User Mana	ager
	Edit user Consumer Details	
	Active	Inactive Active
	Permissions	Superuser Author Learner
	Name	OpenedX
	Consumer Key	AZ-mvadfg
	Secret	4B4pVcE34462Mvk4Tf7d19ceu28QZ2
	Start date	6/7/2017
	End date	6/7/2017

Figure 1 Configuration of LTI in the OpenLabyrinth system

- To activate the LTI module in the advanced settings of the course in OpenEdx, in the "Policy value" field of the settings page, you should add the parameters ["Iti", "Iti_consumer"].
- In the "LTI passport" field within the advanced settings in OpenEdx you should insert the generated values from OL 3 in the format: "id:consumer_key:secret", where the Iti id is an extra parameter included in OpenEdx that can maintain any value; its role is to label the integrated component and bind the values of key and secret.
- Within a course unit in OpenEdX, select the functionality to insert an LTI component. In the configuration settings (Figure 2), insert the launch url and the id as they had been configured for your LTI consumer in OpenLabyrinth.



edX STUDIO	Olds Trens OakLit Olab	Content - Settings - Tools -		Help Nat
	Editing: LTI			
You are editing a dra	graded Grades will be considered in overal		• (0)	• the live V
Display Name: Open Labyri	has_score Does this L11 module have score?	True	• @	Kished unit you must n
10	launch_urf LRs, of the root	http://ec2-54-154-154-11.eu-west-1.compute.a	۲	most to study
	Itil jild Id of the tool	Ri_olab	0	
	Save Cancel			

Figure 2 Creating an LTI component within the course

• The OpenLabyrinth VP should then be accessible from within your course unit in OpenEdX.



/iew this course as: Lea	ner	T		
Home Course Dis	ussion Progress	Syllabus Bios FAQ	Handbook of Behavioral Medicine	
Course > Section 2: Stres	s and coping > Virtual	I patient assignment Section 2 \rightarrow V	irtual patient	
< Previous			I	
Virtual patient				
Bookmark this page				
Virtual Patient				
Virtual Patient		OpenLabyrin	ίμ.	
		OpenLabyrir	iir A	
		OpenLabyrin	fifi Δ.	
		OpenLabyrin	άřί Δ	
		OpenLaByrir	ίκ Δ	
			fifi Δ.	
		OpenLaByrin	fifi Δ	

Figure 3 An OpenLabyrinth Virtual Scenario embedded into OpenEdX using LTI

3.1.2 OpenLabyrinth integrated into FutureLearn

The FutureLearn platform (<u>https://www.futurelearn.com/</u>) is a widely used platform for delivering MOOC content. It was founded by the Open University, and currently has more than 6 million learners registered to the platform.

The FutureLearn infrastructure is closed source, and is not made available for self-hosting. Access to basic administration of the platform and courses is available only to people affiliated to institutions or organisations that are registered partners of FutureLearn. Additional "superuser" access that gives access to high level administrative functions is limited to select FutureLearn employees and staff, and is organised by arrangement and collaboration with partner institutions.



The FutureLearn platform supports the LTI standard and initial testing has been done to confirm that integration is possible. This is done by setting up specified technical details on the OpenLabyrinth system (an LTI User, Consumer Key, Shared secret and base URL - set up as shown in the integration of OpenLabyrinth into OpenEdX above) and providing these to FutureLearn. FutureLearn are then able to set up an "Exercise step" (creating these requires FutureLearn superuser access limited to FutureLearn staff) which can launch OpenLabyrinth as an LTI activity within FutureLearn.

A key item to note is the nature of the URL used as the base URL in order for the integration to take place. If the main home page URL of the OpenLabyrinth system is used, then the learner will be presented with the main index page, and will be able to choose from a list of available cases that are open and accessible.

The preferred solution is to use a direct link to the first node of the VS case as the base URL for the VP case. When learners in the FutureLearn platform then launch the exercise step they will be taken directly to the first node of the case and be able to use the case without needing to navigate there in the OpenLabyrinth system. The learners will be authenticated automatically as the LTI user.







Figure 4 Screenshot of a FutureLearn exercise step that launches OpenLabyrinth as an LTI activity



s,	Back to course	WIDENING ACCESS TO VIRTUAL	ST GEORGE'S, UNIVERSITY	OF LONDON
	follow ups and new patie advice if necessary. Thei (such as spirometry, che next time you see the pa It is important that you as managment plan and arr	a busy afternoon chest clinic. It is a genera ints. Your consultant is in the room next to y re are some investigations whose results w st X-ray or arterial blood gases), but others tient (CT chest, blood tests, nuclear medici ssess each patient and and arrange approp range follow up. Some patients will be more ise appropriately, and avoid the clinic runni	yours, and you can ask his ill be immediatey available will not be available until the ine investigations). briate investigations, make a complex than others, but it is	Mag: AVP Virtual Chest Clinic (630) Node: :0832 Score: suspend reset Font Family Font Sizes Font Family Font Fam
	Review your pathway			OpenLabyrinth is an open source educational pathway system

Figure 5 Screenshot of an OpenLabyrinth activity embedded in FutureLearn



3.2 CASUS Integrations

The integrations in this section focus on CASUS as the tool in the LTI specification, with different platforms as the tool consumer. CASUS is a commercially developed Virtual Scenario platform, which was created at Ludwig-Maximilians University in Munich and which has been developed by Instruct AG.

3.2.1 CASUS integrated into Moodle

This integration focuses on Moodle as the Tool Consumer in the LTI specification. Moodle (<u>https://moodle.org/</u>) is a widely used learning platform globally, that supports more than an estimated 90 million learners across tens of thousands of learning environment instances. Moodle is freely available as an open source project under a GNU-GPL3 licence.

The process for integrating CASUS into a Moodle installation is described below.

 Administrator Setup - The necessary steps to setup CASUS as an LTI plugin only has to be done once, so there is no graphical user interface for this. Instead one single record in the database has to be added. The information absolutely needed for LTI is an Identifier or Name of the LTI integration + a shared secret. Also the LTI enabling needs to include a CASUS "group" (equivalent to client or institution) in Moodle. LTI setup is done within the administration panels in Moodle and requires details of the "Consumer key", shared secret and the base URL, all of which are obtained within the CASUS system. The base URL is more or less fixed, with the only changes occurring in the subdomain used.

localhost:8888/moodle31/mo	od/Iti/toolconfigure	.php		C Q Suchen	▶ ☆ 自 ♥)↓ ♠ 🖗 🕕 🥐
CASUS - Cookies - Cookies - Cookies		Contraction and the second		🔵 📴 Email 🧧 Strato 💻 DFN 🧲 C /*Kontur* 🖌 Größe ändern* 🖌 Werkzeug	-	
Moodle 3.1						- Admin - 🔍 🍷
NAVIGATION Home = Dashboard > Site pages > My courses		Manage to	ols	Add tool	Add	
ADMIN BOOKMARKS Bookmark this page				Alternatively, you can configure a too Manage preconfigured tool Manage external tool registrati	5	
ADMINISTRATION Site administration Notifications Registration Advanced features Users Courses Grades Courses Badges Location Location Language		Tools	* ×			
 Plugins Install plugins Plugins overview 						

Figure 6 Screenshot showing Moodle "Manage Tools" screen



		ngs.php?action=update&id=1&sesskey=9YSmCmtaF		ア ☆ 目		19 U 🕷	Ξ
CASUS - 📄 News - 📄 Dev -						med-u1 🛞 odn3 (s)	
Deaktivieren 🕆 上 Cookies 🕆 🗡 CS	S⊤ 💼 Formu	ilare 🕆 🖾 Bilder 👻 i Informationen 🕆 📦 Sonstiges	s 🔻 🥒 Kontur 👻 🥒 Größe ändern 👻 🦯	Werkzeuge -	 †‡†Einstellungen 	·- ✓ :	×
Moodle 3.1						Admin - 🥄 👻	
NAVIGATION Home = Dashboard > Site pages > My courses	- <	External tool config	uration			▶ Expand al	
		Tool name* 🕐	local test				
ADMIN BOOKMARKS Bookmark this page	- 6	Tool base URL/cartridge URL* ⑦	m7.instruct.de				
		Tool description ③	Test LTI LO				
ADMINISTRATION ✓ Site administration	- C				li		
 Registration Advanced features Users 		Consumer key 💿	1234				
 Osers Courses Grades 		Shared secret ⑦	••••	Unmask			
Competencies Badges Location Language Plugins		Custom parameters ⑦	test=0				
 Install plugins Plugins overview 		Tool configuration usage 🕐	Show as preconfigured tool whe	n adding an external tool	·		

Figure 7 Screenshot showing Moodle LTI tool configuration screen

- Having established the plugin in Moodle the administration side is completed. From that moment on, if correctly set up, the user can create user links as described in the Development plan D2.1, a task identified as a key use case.
- In order to set up the integration it is necessary to have the correct access permissions; on the CASUS side the course manager role is required, which enables users to create/edit courses. On the Moodle side the user needs the possibility to generate Moodle activities.
- Having completed the administration steps above, multiple links to CASUS resources can be created within the Moodle installation. In order to create a link in Moodle to a CASUS resource, the following steps should be followed:
 - Create a CASUS course and include the wanted cases
 - If LTI is enabled for the client (as described above), the course manager in CASUS will display an LTI section. This section contains a ready to go set of encrypted parameters which can be copied and pasted over to Moodle.
 - Once the relevant encrypted parameter has been copied this can be either the entire course or just one particular case within the course the course manager can go now to a Moodle course and add an "activity".
 - If correctly set up a separate activity should be selectable
 - Within that activity, all necessary base parameters should already be ok, so the only setup needed is to paste the copied parameters from CASUS into the Moodle fields.
 - Please note: CASUS will open cases in a separate window, rather than as a frame within the Tool Consumer system.



(i)	e/course/view.php?id=6124#section-0	C Q Suchen	▶☆自♥↓食◎⑧ ♥			
CASUS - News - Dev - Pvt - 2						
	are * Bilder * / Informationen * Sonstiges * / Kontur *					
		F Clobe Bridering Meritzeuge	Dentext anzeigen 111 zursteinungen			
MU Startseite Dashboard	d Support		Martin Adler 🌚 🍷			
T NAVIGATION	Testkurs Martin Adler		Bearbeiten ausschalten			
+ ÷-	I ESIKUI S Martin Aurer					
Startseite	Startseite / Intern / Kurse Administratoren (Te	ests, Demos usw.) / Testkurs Mart	in Adler			
= Dashboard						
▼ Dieser Kurs			TI SUCHE IN FOREN			
 Testkurs Martin Adler 	Allgemeine Informationen zu AINS 🥖	Bearbeiten *	* I SUCHE IN FOREN			
 Teilnehmer/innen Auszeichnungen 	Test Moodle Course for LTI Integration					
Meine Kurse			Start			
Alle Kurse	💠 📁 Nachrichtenforum 🥢	Bearbeiten - 👤	Erweiterte Suche (?)			
	💠 📕 Lernziele Suchfunktion 🧷	Bearbeiten - 💄				
	🕂 C Test Fall	Bearbeiten -	TR NEUE ANKÜNDIGUNGEN			
⊕ ⊕ +	Test Kurs	Bearbeiten *	国 NECE ANKONDIGUNGEN 中 泰一			
	Test Kurs	bearbeiten *				
 Kurs-Administration 	+ M	aterial oder Aktivität hinzufügen	Neues Thema hinzufügen			
 Bearbeiten ausschalten Aktivitätenauswahl aus 			(Keine Ankündigungen im Forum)			
Einstellungen						
Nutzer/innen	🕂 Thema 1 🧷	Bearbeiten *	Te AKTUELLE TERMINE			
1 Abmelden aus 'Testkurs			÷ ÷-			
Martin Adler'	+ M	aterial oder Aktivität hinzufügen	Keine weiteren Termine			
Filter Berichte						
Bewertungen			Zum Kalender Neuer Termin			
Ell berreredigen	🕂 Demokurs 🧷	Bearbeiten *				

Figure 8 Screenshot showing LTI links to Casus in Moodle



https://www.med.moodle.elearning.lmu.de/		C Q Suchen ⊬ ☆ 自 ♥ ↓	
CASUS = 📄 News = 📄 Dev = 📄 Pvt = 📴		🗍 🔤 Email 🖸 Strato 🛁 DFN C Campus/Casus 🗍 med-u3 🛞 MedL / Kontur * 🖌 Größe ändern * 🖌 Werkzeuge * 💠 Queiltext anzeigen * 🚻 Einst	-
MU KLINIKUM Startseite Dashboard	Support	Frences Conserver Strencesso Conserver analogon III anno	Martin Adler
Wiederherstellen	* (?)	Aktivitätenname bei Start anzeigen	
Kurs-Administration	* (?)	Beschreibung bei Start anzeigen	
Rolle wechseln	Vorkonfiguriertes Tool ⑦	CASUS + + + + + + + + + + + + + + + + + +	
_			
BLOCK HINZUFÜGEN	URL für Tool oder Cartridge 🕐		
Hinzufügen	Sichere Start-URL* (?)		
	Startcontainer* ⑦	Neues Fenster	
	Anwenderschlüssel* 🕐		
	Öffentliches Kennwort* 🕐	□ Klartext	
	Angepasste Parameter* ⑦	CASUSPARMS=/b3hliCMuKrbbUFhD9/KorgWN51bz	
		/08TAqbESuDYoOAJ9joluaJmNJ9C0avaINDiUP7gc4RAFLO0S4C HlyP3gK94ldvcPOEScNLagc93yfxhPkeP8rJZ7HSld8RdIJZ	
		HIYP3gN94lavcPOEScinLagc93yIXnPkeP8rJZ/HSid8HdiJZ	
	Icon URL* ⑦		
	Sichere Icon-URL* ⑦		
		Weniger anzeigen	
		Weniger anzeigen	

Figure 9 Screenshot showing configuration screen for LTI links in Moodle

Within the encrypted parameters copied from CASUS additional information such as the creation date of the linked parameters or the CASUS version are encoded. For this reason, each link will look unique, even if two links are to the same course and case. This can be confusing for the user and is under consideration for being improved in the future.

For error checking, debugging and testing purposes, each call from Moodle to CASUS is logged in detail to the database including the entire encrypted string.

The exemplar integration was tested in a live production system in March and April 2017 with University of Munich. The reason for implementing this in the live system was that the University of Munich updated to a new Moodle version, and no longer wished to use the old integration protocol SCORM AICC/HACP. Around 100 links were changed to LTI, with no major issues encountered in the given timeframe. However, the following conceptual information was revealed to be of interest and relevant for this exemplar integration:

LTI is NOT an identity management solution. Usually in such integrations, LTI users are
regarded as external users with possibility to login directly into the VS system. LMU
however has a hybrid approach, which made some additional configuration possibilities
necessary. A federated identity management (DFNAAI - Shibboleth based) is likely to be
considered in future.



- LTI relies on shared secrets being kept confidential, which has to be negotiated. If these are not kept confidential, it opens the unavoidable possibility that someone could gain unauthorised access to the system using this information.
- LTI with Moodle can provide Moodle roles and relevant access permission profiles. With proper planning on the administration side and exchange of role profiles, as well as mapping Moodle roles to CASUS roles, more sophisticated authorization could be enabled.

Following the implementation at LMU, we concluded that moving to LTI links at LMU was a success and was straight forward. Minor UX improvements can be planned to improve the process further. In a second phase the links to the CASUS module "Learning objectives" were changed as well.

3.2.2 CASUS integrated into FutureLearn

Integration FutureLearn to CASUS was completed in October of 2017. The strict access control of FutureLearn led to a long process of discussion before we could identify the solution for integration. Thanks to the very helpful FutureLearn team we were finally able to get our own sandbox test environment, which helped us to work on and complete the task.

The process of implementing the integration is very similar to the process with Moodle described above. However, the following details the major differences between the two integrations:

Moodle allows passing an extra application specific parameter in an extra field "custom parameter". Moodle takes care of passing this parameter within the HTTP POST with all encryption necessary. FutureLearn only accepts a complete URL, so encryption has to be different from the custom parameter for Moodle, especially as any "+" characters within the URL are then handled as spaces, while Moodle automatically encrypts the "+" signs to "%2b". The CASUS team has to think about changing the page for the LTI setup in future in order to allow different variants.



	C D player.casus.net/author/app	/cm2/ltiinterface.html?docid=1508217502478&pmwid=053A2D1138F8D16F6B99AE6D28E8E768	\$
pps	CASUS Casus Privat	Entwicklung 🔆 OTRS 💧 Shared with me - G 🧧 Google Kalender 💧 Meine Ablage – Goo 📋 CASUS Online 📋 med-u1 🗈 med-u2 🗈 SIMPLE Beta » 🚞 Ar	dere Leseze
sverv	valtung: WAVES - Integration	Adler Martin ∽ Gehe zu ⑦ H	ife 🗲
Kurs	daten Teilnehmer verwalten Fälle ve	rrwatten Gruppenmanagement Auswertungen	
TI S	Schnittstelle		
ioliter önne		ben, kontaktieren Sie am besten den Administrator des Lernsystems, auf dem Sie CASUS über LTI anbinden wollen. Er wird Ihnen weiterhelfen können, wie Sie die Schnittstell	e einbinden
	is spezifische LTI Parameter		
Тур	Name	LTI Parameter	Aktion
Kurs	WAVES - Integration	CASUSPARMS=/b3hliCMuKrbbUFhD9/KohGjD+HxT1gHO080W7Wa4Dqjb9keSLbd385l9Rn#GmohKza0tn9H00700S4CHlyP3gK94idvcPOEeVoUxrz5FY=	kopieren
Fall	(evip pl export new) 12-letnia	CASUSPARMS=/b3hilCMuK/bbUFhD9/KohGjD+HxT1gHOT/9VHO1ijaf6aOtOlWeeB5i9Rn6GmohKza0tn9H007O0S4CHiyP3gK94idvcPOEOSVYpb+fYV/AocU0XUx+2dixpw7Nm+C	kopieren
	dziewczynka z guzem policzka		
Fall	(evip pl export) 17-letni pacjent z urazem łydki	CASUSPARMS=/b3hliCMuKrbbUFhD9/KohGjD+HxT1gHOT/9VHO1IjZvlaqW4lhmuB5l9Rn6GmohKza0tn9H00700S4CHlyP3gK94ldvcPOEOSWYpb+fYWNHCn1/gbSl4B+rcYgOhW	kopieren
Fall	(evip pl export new) 17-letnia pacjentka zapadająca w śplączkę	CASUSPARMS=/b3hlCMuKrbbUFhD9lKohGjD+HxT1gHOT/9VHO1ja7MN4EQ9QC1h5i9Rn6GmohKza0tn8H0O70054CH9/P3gK94ldvcPOEDSWYpb+PYXEtraXID7MioB+rcYgOHW	kopieren
Fall	19 jährige Schülerin mit Fleber und Halsschmerzen	CASUSPARMS=/b3hilCMuK/bbUFhD9iKohGjD+HxT1gH0T/9VH01ljakUo43wrDnYB5l9Rn6GmohKza0tn9H0070084CHlyP3gK9kidvcP0E0Sl/Ypb+fYXhHvsUZjPize/6vynBD3Q0	kopieren
Fall	19 jährige Schülerin mit Untergewicht	CASUSPARMS=/b3hilCMuKrbbUFhD9/KohGjD+HxT1gH0T/9VH01j]Ye3oPLUoIIDh5iBRn8GmohKza0tn9H0070054CHiyP3gK94IdvcP0EOSVYpb+fYXhHvbUZjPlzQv2JLJEXtzF	kopieren
Fall	(evip pl export new) 19-letni pacjent z bólami w klatce	CASUSPARMS=/b3hiCMuk/bbUFhD9/kohGjD+HxT1gHOT/9VHO1ijZIEA1XE2nx0x5I9Rn6GmohKza0m9H00700S4CHIyP3gK94idxcP0E0SV/tpb+ft/WGki+m/upXeD4OwPCb4W4c	kopieren
Fall	(evip pl export new) 19-letnia pacjentka w ciąży (zagrożona porodem przedwczesnym)	CASUSRAMS=ib3hiCMuKrboURhD8KonGj0+Hx11gH0T/9VH01lZel201PFPuR5i8Rn6GmohKzadm9H0070054CHiyP3gK9idvcP0E0SVYpb+fYW47z7b18Jwi03x03KQaN	kopieren
Fall	(evip pi export) (gyn) 19-letnia pacjentka zagrožona porodem przedwczesnym	CASUSPARMS=/cdhliCMuKrbbUPhD9/KohGjD+HxT1gHOT/9VHO1jbWmBwbOaYChR5/9Pn8GmohKza0tn9H0O70054CHlyP3gK94ldvcPOEOS/WYpb+fYWUL/gTeKwsAybDBggwnFsd	kopieren
Fall	(evip pl export) 19-letnia uczennica z bólem gardła	CASUSPARMS=/b3hiCMuKrbbUPhD9/KohGD+HxT1gHOT/9VHO1ljb9laikZq79h5l9Rn6GmohKza0tn9H0O7O0S4CHlyP3gK94ldvcPOEOSW1pb+IYXFZWU+jCxuKrAtwxXqzB/	kopieren
Fall	(evip pi export new) 20-letnia pacjentka ze spuchniętą twarzą	CASUSPARMS=/b3hllCMuKrbbUPhD9rKohG D+HxT1gH0T/9VH01 Z0rg0EBhtopB5I9Rn6GmohKza0tn9H0070054CHiyP3gK94ldvcP0EOSW1pb+1YX7sDSs45XR7X2NL5M9xGZ4	kopieren
Fall	(evip pl export) 21-letni pacjent z biegunką	CASUSPARMS=/b3hliCMuKrbbUFhD9/KonGjD+HxT1gH0T/9VH01 jbKllR4DWliwh5l8Rn/9GmchKzal/tn9H0070054CHlyP3gK94dvcP0EOSW1pb+fYWlp2PvOQwb/eWq77ksqRq	kopieren
Fall	24 jährige Bürokauffrau mit rezidivierende Diarrhoe	CASUSPARMS=/b3hliCMuKrbbUFhD9iKohGjD+HxT1gHOT/9VHO11jaW32A3QXbJ7B5i9Rn6GmohKza0tn9H00700S4CHiyP3gK94ldvcPOEOSWYpb+fYU1GWKvsR5xpkp5rdTD8nnj	kopieren
Fall	(crt evip en)Eva Miller	CASUSPARMS=/b3hliCMuKrbbUFhD9/KohGjD+HxT1gH0T/9VH01l/YgqdP5F1TZIh5I9Rn6GmohKza0tn9H00700S4CHiyP3gK94ldvcP0E0SVY/pb+fYX2Lk0M3yy2zdVUZcvkw5C4	kopieren
Fall	(evip pl export new) 24-letni pacjent z owrzodzeniami w jamie ustnej	CASUSPARMS=/b3hiCMuKrbbUFhD9/KohGjD+HxT1gHOT/9VHO1jb4FBsKBpuPHBSi9Rn6GmohKza0tn9H0O70054CHiyP3gK34idvcPOEOSWYpb+fYWeimeJzjLAiabt2jARKQHy	kopieren
Fall	25 jähriger Student mit Knieschwellung	CASUSPARMS=/b3hlCMukribUFhD9rKohGjD+HxT1gHOT/9VHO1IjVWStt8o438GR5I9Rn6GmonKza0tn9H007O0S4CHIjP3gK94ldvcPOEOSWYpb+fW+yrHnSNKfixhbCqg3MdYC	kopieren
Fall	(evip pl export) 25-letnia kobieta z atopowym zapaleniem skóry	CASUSPARMS-/b3hilCMuKrbbUFhD8/KohGjD+HxT1gHOT/8VHO1ijagPzAo2z/N9R5i9Rn6GmohKza0tr9H0070054CHiyP3gK94idvcPOEOSVYpb+fYWGVg4Pf7HCYbYUbUE95eo	kopieren
Fall	(evip pi export new) 25-letnia kobieta z bólem brzucha i nudnościami	CASUSPARMS=/b3hilCMuKrbbUPhD9iKohQlD+HxT1gH07/9VH01ljYc8flD9QVcx5l9Rn6GmohKza0tn9H00700S4CHlyP3gK84ldvcP0E0SWYpb+fYUC7j1rXM6v/0Wq77kaqfRq	kopieren
Fall	(evip pl export new) 27-letnia fryzjerka ze zmianami wypryskowymi na dłoniach	CASUSPARMS=/b3hilCMuk/bbUFhD8/KohGjD+HxT1gHOT/9VHO1IjalAOUU9/EAjh5/9Rh6GmohKza0tn9H007O0S4CHlyP3gK44dvcPOEOS/Wyb+rYW85SNqtSpan1eYwycYFgrS	kopieren
Fall	(evip pl export) 28-letni pacjent z bladością, dusznością i nudnościami	CASUSPARMS=/b3hlCMu/c/bbUFhD9i/cohQlD+HxT1gHO7/9VH01lbOeA2XdVtr/XR9i9Rn6GmonKza0tn9H0070054CHlyP3gK9kldvcP0EOSWYpb+hYUKP3EG9Zb0Yh0X7pWF5jC7	kopieren
Fall	(evip pl export) 29-letnia pacjentka - czerwone oko	CASUSPARMS=/b3hliCMuKrbbUFhD8/KohGjD+HxT1gHO7/9VHO1lYSAVFrQtbKTh5/8Rn6GmohKza0tn8H0070054CHiyP3gK9HldvcPOEOSWYpb+hYWTpZbXj+OeVLAtiwxXqz8/	kopieren
Fall	(crt evip en)Clark Wilman	CASUSPARMS=/b3hliCMuKrbbUFhD9/KohGjD+HxT1gHOT/9VHO1IjZMsz9b/V/bxB5i9Rn6GmohKza0tn9H0O7O0S4CHiyP3gK94idvcPOEOSWYpb+fYXAumT0Psqny82ZcVEGofuq	kopleren
Fall	(evip pl export) 30-letni pacjent z	CASUSPARMS=/b3hliCMuKrbbUFhD9/KohGjD+HxT1gHOT/9VHO1IjZ/Eyu/Bb+BUR5I9Rn6GmohKza0tn9H0O7O0S4CHIyP3gK94ldvcPOEOSWYpb+fYUs5HkoTUWuviPSDOTbf36b	

Figure 10 Page for Copying the casus specific parameters in CASUS course manager

 Moodle allows displaying of LTI links in extra windows, whereas FutureLearn only displays content in an iframe. CASUS does not support running in an iframe well, and in some of the POST requests the target is the window, so the iframe would disappear anyway. We decided to reopen the popup window support with an extra link in case popups are blocked by the users' browser. We might improve that part in terms of usability in the future.

The challenges we encountered with the FutureLearn integration might be the same as in other systems which do not follow the very structured Moodle approach with custom parameters. Being aware of this and potentially selecting "known" hosting systems on the course manager page while giving clear and specific instructions will help less technically experienced learners to generate and set up links correctly.

The CASUS team overall thinks that the Moodle approach serves the needs of inexperienced users better, as it can hide the entire administration setup by instead issuing a "shared secret" to the course creator. Giving out shared secrets to multiple additional individuals can be problematic, so access permissions which deal with encryption and the issuing of "shared secrets" should be ideally restricted to selected staff members with an understanding of the implications of sharing this information.



•••	🔆 2017101710000042 - Zoom	- 🗙 🛃 CASUS - Widening Access to 🗙 🕂								
â	🗲 🛈 🔒 https://www.futu	relearn.com/courses/waves-scenarios/1/steps/22	5478 C	Q Suchen	+	ŗ	۲	0 🕅		=
📄 Inga 💼 CAS	SUS 🚞 News 🚞 Dev 🚞 Pvt 🤮	🔤 PVI 🗙 💠 CE 💠 🌠 docs 🔆 OTRS 💽	GPS Ġ 📃 🚺 🔟 Em	nail 🔟 Strato 🗮 DFN 🧲 Camp	ıs/Casus 🤺 Anmeldung -	OTRS 4	🛞 Me	dU 🛞 te	st7	
Deaktivieren *	LCookies* ≯CSS* 🚔 Formulare	■Bilder i Informationen Sonstiges / Ke	ontur 🔹 🖋 Größe ändern 🔹	✓Werkzeuge * <>Quelitext anzei	gen∗ †‡tEinstellungen∗				✓	×
		CASUS								
		test								
		Please note, by launching the exercise provided by a third party website.	you will be taken to	a page containing content						
			EXERCISE							
			CASUS							
			Launch							
		+ 0 comments			rk as iplete					
		TEST OPEN LABYRINTH	OV	ERVIEW OF WRITING A VIRTUAL SCENARIO					Supp	

Figure 11 Screenshot showing a link to a CASUS LTI activity in FutureLearn



💼 CASUS 💼 News 🛅 Dev 🛅 Pvt 📓 🚳 PvI 🎽 🔷 CE 🔷 🏹 docs 🔆 OTRS 🕞 GPS G 📃 🕕 🔤 Email 🖸 Strato 🗮 DFN C Campus/Casus 🔆 Anmeidung - OTRS 4 🛞 MedU 🛞 test7			10000042 - Zoom -						-							0	
Ivieren* Lookies* 2005* Formulare* EBilder* i Informationen* Sonstiges* / Kontur* / Größe ändern* / Werkzeuge* () Queiltext anzeigen* #Einstellungen* Back to course WIDENING ACCESS TO VIRTUAL ST GEORGE'S, UNIVERSITY OF LONDON () Hitfe ASUS Plugin-Homepage erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet Es wird versucht dieses Fenster automatisch zu schließen / we will try to close this extra window automatically)	+	2			
Back to course WIDENING ACCESS TO VIRTUAL ST GEORGE'S, UNIVERSITY OF LONDON Image: Comparing the state of the state o							-				-			OTRS 4	🛞 Me	edU 🛞 te	
ASUS Plugin-Homepage erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet Es wird versucht dieses Fenster automatisch zu schließen / we will try to close this extra window automatically	aktivieren *	LCookies* XCS	ST 🚔 Formulare	i≣Bilder* <i>i</i> Ir	formationen*	Sonstiges	🔹 🧪 Kontur 🔹	🖨 Größe änderr	🔹 🦨 Werl	kzeuge∗ ∢> Qu	elltext anzeiger	n r i ∔tEinste	llungen *				✓
ASUS Plugin-Homepage erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet Es wird versucht dieses Fenster automatisch zu schließen / we will try to close this extra window automatically	Back t	to course	WIDENING A	CCESS TO VIR	TUAL ST	GEORGE'S,	, UNIVERSITY	OF LONDO	4								
ASUS Plugin-Homepage erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet Es wird versucht dieses Fenster automatisch zu schließen / we will try to close this extra window automatically																_	
erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet																⑦ Hilf	Э
erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet																	
erlinkung ok, Sie wurden autorisiert, Ihre Sitzung wird gestartet	CASUS	Plugin-Hom	epage														
Es wird versucht dieses Fenster automatisch zu schließen / we will try to close this extra window automatically		g	-19-														
	Verlinkur	ng ok, Sie wurden	n autorisiert, Ihre	Sitzung wird g	estartet												
new windwo should be opened, please check popup blocking, you can click here to open the window manually	Es wird v	/ersucht dieses Fe	nster automatisc	1 zu schließen /	we will try to a	close this ex	tra window au	tomatically									
. new windwo should be opened, please check popup blocking, you can click here to open the window manually																	
	A new wi	ndwo should be op	pened, please ch	eck popup block	cing, you can	click here to	open the win	dow manually									

Figure 12 Screenshot showing landing page for LTI links (and other integrations) in CASUS, embedded into FutureLearn



	🛈 🚔 https://odn13.casus.net/pmw2/app/player2/player_selection2.html?ts=1508237802797&lisplugin=true	E1		
Kurs Dashboar	1> WAVES - Integration ~	Kurs-Teilnehmer 🗸	⑦ Hilfe	4
VAVES - Inte	ngration 132 Fälle im Kurs	O Letzte Aktivitäten		
	Details verbergen	Fall: 12-letnia dziewczy policzka (Karten: 0		
Email des Kur	befrevens: support@casus.eu	Fall: 17-letni pacjent z (Karten: 4 / 14)	urazem łydki	
	12-letnia dziewczynka z guzem policzka wereni Mostern Gryten, Moral Gentra			
1	unangenin navgatavana ur optonis, intoni ur obnituz antenen Antonia (antoni una pantin vitio in opti on mandbule atzle Aktualsierung: 2. Juli 2010	Jusammenfassung		0
	17-letni pacjent z urazem lydki	Durchschn. Erfolg:		
1	Wateferfel D. Postoch P. Detabolike Internetian T-T-yara oli socioco risiyer atzte Astualisierung: 12. Jul 2008		100%	
	17-letnia pacjentka zapadająca w śpiączkę			
	ulufonjenji Upuzija Wik Immeniatra 71-apa u naj patient faling into coma Atzle Adulališemung: 28. August 2009			-
	19 jährige Schülerin mit Fieber und Halsschmerzen	Mobile Version		
	uutofeeh: Durinis Konsions Annonetta «voivus voi looKs?2 atzto Attualisierung: 13. Jul 2009			
	19 jährige Schülerin mit Untergewicht			
	uwforfer) Durinia Krimolana Kimemetar av dvysa (1005/1 Attel Ashualiserung) 1. Mai 2010			
	19-letni pacjent z bólami w klatce werden: Dr. Kalaryna Styczkewicz			
	wangenjo, na za za osycetowa Amerika 19 jan od umo palatet with thoracity atzle Atualsierung: 2. Januar 2010			
	19-letnia pacjentka w ciąży (zagrożona porodem przedwczesnym) wefęt: Dona Maluzy, Majorzał Donico			
1	undergen Durcha knallsch, knagszal Louebo Innemerkar: 19-yan ografi knana Astar Aktualsierung: 3. Deamber 2008			
	gyn) 19-letnia pacjentka zagrożona porodem przedwczesnym werdeni B. Pałmowica, D. Maluzyk, M. Dostor, Nauda Stroge Wiljolowicz			
1	uantentra in antennomia La Mauliza, M. Lubezic, Nauda sentra-Wolckowicz Antennetra (gwacosa) (J Wawi dd panyant woman setze Astualsierung: 14. April 2010			
	19-letnia uczennica z bólem gardła			
	whoffeeb Minh Kooz, Murh Fileran, Urazuk Wik Germentar A 19-year ol aschod pri with sove throat etter Akulaisenergi 23. Jul 2010			

Figure 13 Opened CASUS course in a new popup opened either automatically or manually with the link on the landing

4 BIBLIOGRAPHY

LTI: https://www.imsglobal.org/activity/learning-tools-interoperability

Shibboleth: https://shibboleth.net/

DFN AAI: https://www.aai.dfn.de/

AICC: https://github.com/ADL-AICC/AICC-Document-Archive/

Moodle of LMU Munich https://www.med.moodle.elearning.lmu.de/